

AMENDMENTS TO THE CLAIMS

1. (Original) A control device for an auger type ice making machine, comprising:
 - a driver circuit that drives a geared motor for rotating an auger;
 - a voltage detector that detects an input voltage applied to the geared motor;
 - a current detector that detects a motor current flowing in the geared motor; and
 - a control circuit in which a plurality of current threshold values that differ according to the input voltage are set in advance, the control circuit controlling the driver circuit so as to stop the geared motor when a value of the motor current detected by the current detector exceeds a current threshold value that corresponds to the value of the input voltage detected by the voltage detector.
2. (Original) A control device for an auger type ice making machine according to claim 1, wherein the control circuit ignores a value of the motor current detected by the current detector during start-up of the geared motor.
3. (Currently Amended) A control device for an auger type ice making machine according to claim 1, wherein the plurality of current threshold values of the control circuit includes a ~~has~~ a-high current threshold value corresponding to start-up of the geared motor.
4. (Original) A control device for an auger type ice making machine, comprising:
 - a driver circuit that drives a geared motor for rotating an auger;
 - a voltage detector that detects an input voltage applied to the geared motor;

a rotating speed detector that detects a rotating speed of the geared motor; and
a control circuit in which a plurality of rotating speed threshold values that differ according to the input voltage are set in advance, the control circuit controlling the driver circuit so as to stop the geared motor when a value of the rotating speed detected by the rotating speed detector is less than a rotating speed threshold value that corresponds to the value of the input voltage detected by the voltage detector.

5. (Original) A control device for an auger type ice making machine according to claim 4, wherein the control circuit ignores a value of the rotating speed detected by the current detector during start-up of the geared motor.

6. (Currently Amended) A control device for an auger type ice making machine according to claim 4, wherein the plurality of rotating speed threshold values in the control circuit ~~has a~~ includes a high rotating speed threshold value corresponding to start-up of the geared motor.

7. (Currently Amended) A control device for an auger type ice making machine, comprising:

a voltage detector that detects an input voltage applied to a geared motor for rotating an auger;

a current detector that detects a motor current flowing in the geared motor; and

a control circuit which determines a threshold value for the motor current according to a value of the input voltage detected by the voltage detector, ~~and which, when a value of the motor current detected by the current detector exceeds the threshold value,~~

wherein the control circuit controls operation of a refrigeration circuit of the ice making machine such that a refrigeration capacity of the refrigeration circuit ~~decreases~~- decreases when a value of the motor current detected by the current detector exceeds the threshold value.

8. (Currently Amended) A control device for an auger type ice making machine according to claim 7, further comprising:

a fan motor for cooling a condenser of the refrigeration circuit; and

a regulating circuit that drives the fan motor at variable speed,

wherein the control circuit ~~decreases~~ ~~decreasing~~ the refrigeration capacity of the refrigeration circuit by controlling the regulating circuit so as to decrease a rotating speed of the fan motor.

9. (Currently Amended) A control device for an auger type ice making machine according to claim 7, further comprising a regulating circuit that drives a compressor of the refrigeration circuit at variable speed,

wherein the control circuit ~~decreases~~ ~~decreasing~~ the refrigeration capacity of the refrigeration circuit by controlling the regulating circuit so as to decrease a rotating speed of the compressor.

10. (Currently Amended) A control device for an auger type ice making machine according to claim 7, further comprising:

a bypass pipe that communicates an outlet side of a compressor of the refrigeration circuit with an outlet side or an inlet side of an evaporation pipe; and

an electromagnetic valve attached to the bypass pipe,

wherein the control circuit ~~decreases~~ ~~decreasing~~ the refrigeration capacity of the refrigeration circuit by opening the electromagnetic valve to guide coolant to the bypass pipe.

11. (Currently Amended) A control device for an auger type ice making machine, comprising:

a voltage detector that detects an input voltage applied to a geared motor for rotating an auger;

a rotating speed detector that detects a rotating speed of the geared motor; and

a control circuit which determines a threshold value for the rotating speed of the geared motor according to a value of the input voltage detected by the voltage detector, ~~and which,~~
~~when a value of the rotating speed detected by the rotating speed detector is less than the threshold value,~~

wherein the control circuit controls operation of a refrigeration circuit of the ice making machine such that a refrigeration capacity of the refrigeration circuit ~~decreases-~~ decreases when a value of the rotating speed detected by the rotating speed detector is less than the threshold value.

12. (Currently Amended) A control device for an auger type ice making machine according to claim 11, further comprising:

a fan motor for cooling a condenser of the refrigeration circuit; and

a regulating circuit that drives the fan motor at variable speed,

wherein the control circuit ~~decreasing~~ decreases the refrigeration capacity of the refrigeration circuit by controlling the regulating circuit so as to decrease a rotating speed of the fan motor.

13. (Currently Amended) A control device for an auger type ice making machine according to claim 11, further comprising a regulating circuit that drives a compressor of the refrigeration circuit at variable speed,

wherein the control circuit ~~decreasing~~ decreases the refrigeration capacity of the refrigeration circuit by controlling the regulating circuit so as to decrease the rotating speed of the compressor.

14. (Currently Amended) A control device for an auger type ice making machine according to claim 11, further comprising:

a bypass pipe that communicates an outlet side of a compressor of refrigeration circuit with an outlet side or an inlet side of an evaporation pipe; and

an electromagnetic valve attached to the bypass pipe,

wherein the control circuit ~~decreasing~~ decreases the refrigeration capacity of the refrigeration circuit by opening the electromagnetic valve to guide coolant to the bypass pipe.

15. (New) The control device of claim 7, wherein the control circuit decreases the refrigeration capacity of the refrigeration circuit without ceasing ice making operations of the ice making machine.

16. (New) The control device of claim 11, wherein the control circuit decreases the refrigeration capacity of the refrigeration circuit without ceasing ice making operations of the ice making machine.

17. (New) An auger type ice making machine comprising:

- a refrigeration casing;

- a refrigeration circuit including a compressor, a condenser, a drier, an expansion valve, and an evaporation pipe for cooling ice making water so as to form ice in the refrigeration casing;

- an auger having a helical blade for scraping ice off an inner circumferential surface of the refrigeration casing;

- a geared motor for rotating the auger; and

- the control device of claim 1 for controlling the geared motor.

18. (New) An auger type ice making machine comprising:

- a refrigeration casing;

- a refrigeration circuit including a compressor, a condenser, a drier, an expansion valve, and an evaporation pipe for cooling ice making water so as to form ice in the refrigeration casing;

- an auger having a helical blade for scraping ice off an inner circumferential surface of the refrigeration casing;

- a geared motor for rotating the auger; and

the control device of claim 4 for controlling the geared motor.

19. (New) An auger type ice making machine comprising:

a refrigeration casing;

a refrigeration circuit including a compressor, a condenser, a drier, an expansion valve,
and an evaporation pipe for cooling ice making water so as to form ice in the refrigeration
casing;

an auger having a helical blade for scraping ice off an inner circumferential surface of the
refrigeration casing;

a geared motor for rotating the auger; and

the control device of claim 7 for controlling the refrigeration circuit.

20. (New) An auger type ice making machine comprising:

a refrigeration casing;

a refrigeration circuit including a compressor, a condenser, a drier, an expansion valve,
and an evaporation pipe for cooling ice making water so as to form ice in the refrigeration
casing;

an auger having a helical blade for scraping ice off an inner circumferential surface of the
refrigeration casing;

a geared motor for rotating the auger; and

the control device of claim 11 for controlling the refrigeration circuit.